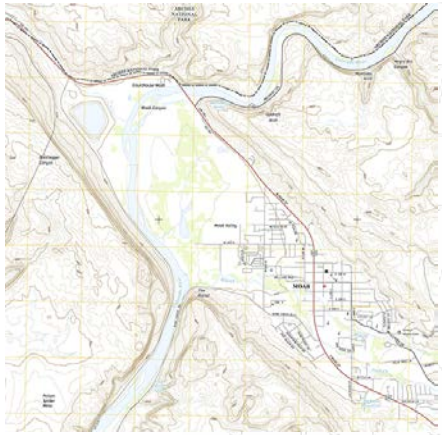
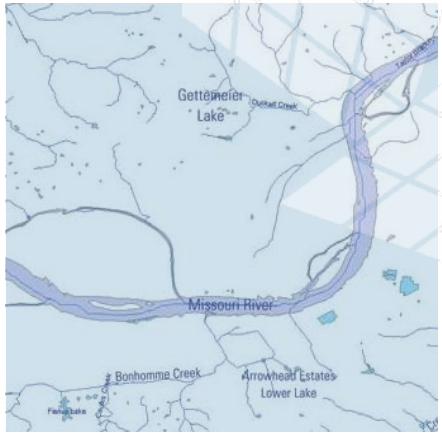
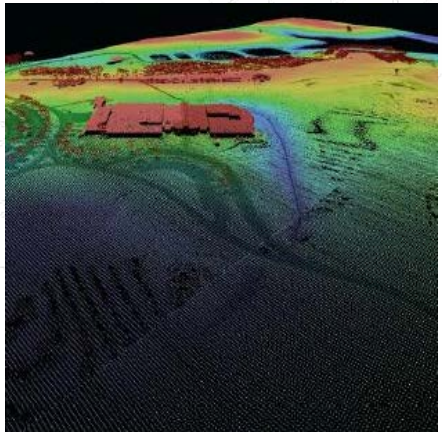
NHDPlus High-Resolution Update







Al Rea
National Geospatial Program

Ellen Finelli
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1/21/2015

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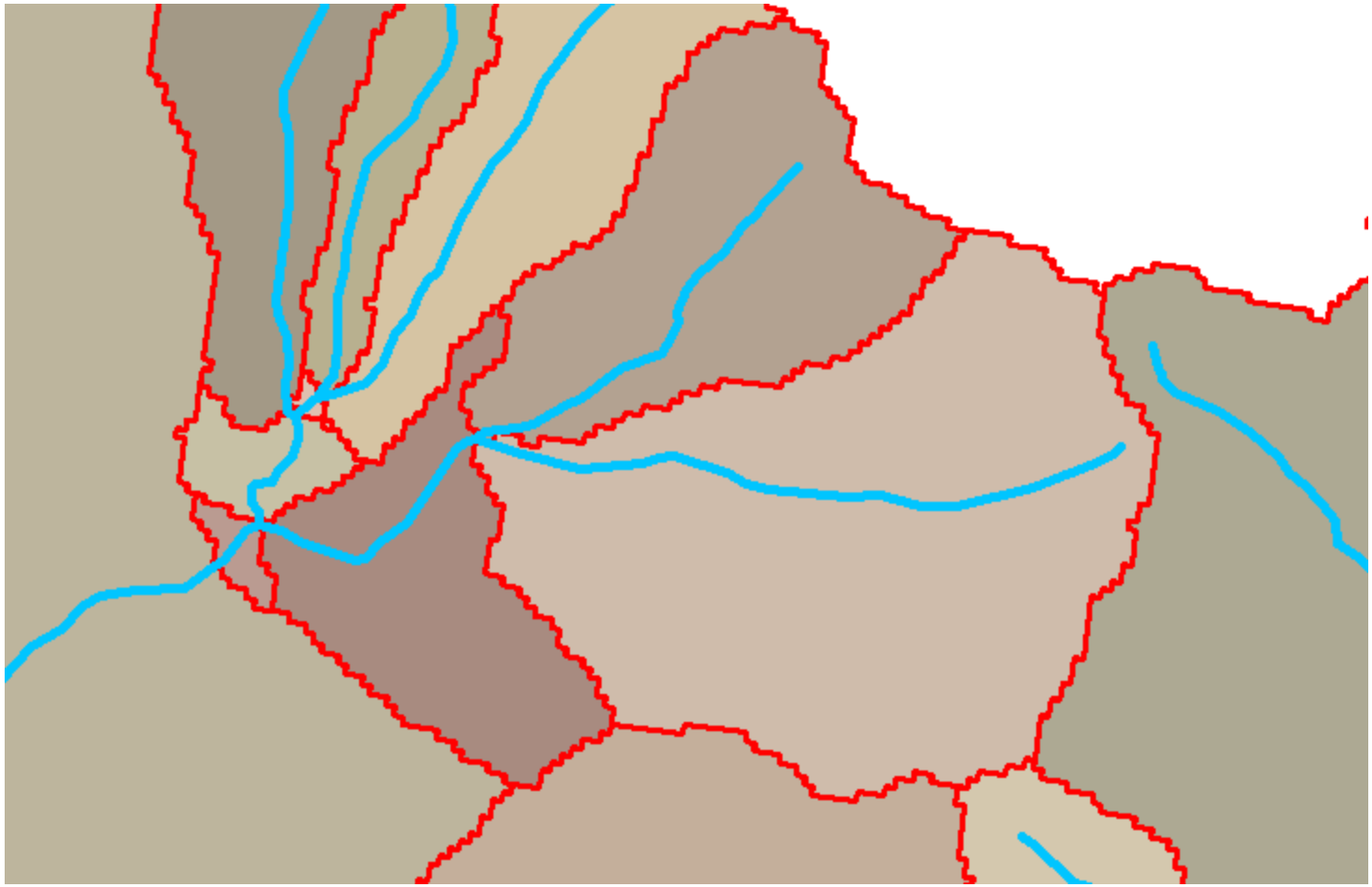
What will NHDPlusHR look like?

- Snapshots of ingredient data
  - High Resolution NHD
  - Watershed Boundaries Dataset (WBD)
  - 10-meter DEMs (3DEP)
- Value-added attributes (VAAs)
- Catchments
- Flow direction and accumulation grids

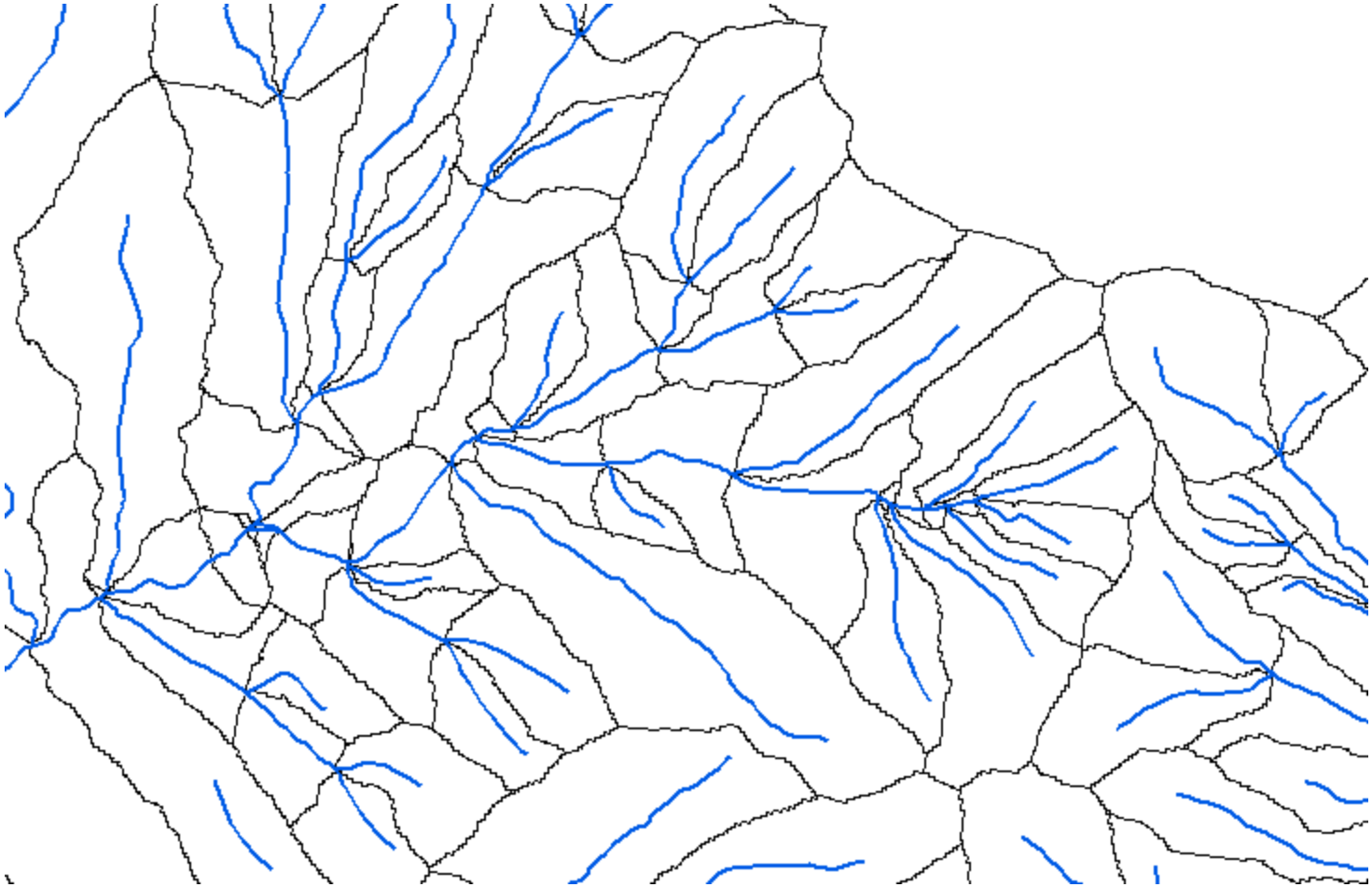
Comparison with NHDPlus V2

	NHDPlus - Med Res (V2)	NHDPlus - High Res
Elevation Snapshot	National 1 Arc-Second Seamless DEM (30 meters)	National 1/3 Arc-Second Seamless DEM (10 meters)
NHD Snapshot	Medium Resolution NHD 100K	High Resolution NHD Local, 24K, & 63K (AK)
WBD Snapshot	Composite 2010-2012	Updated WBD
File format	Shape file & Grids	File GeoDatabase & TIFF
Tile size	HUC-2 (with exceptions)	HUC-4
Tools (Build/Refresh)	Version 2	New High Res Process & Tools

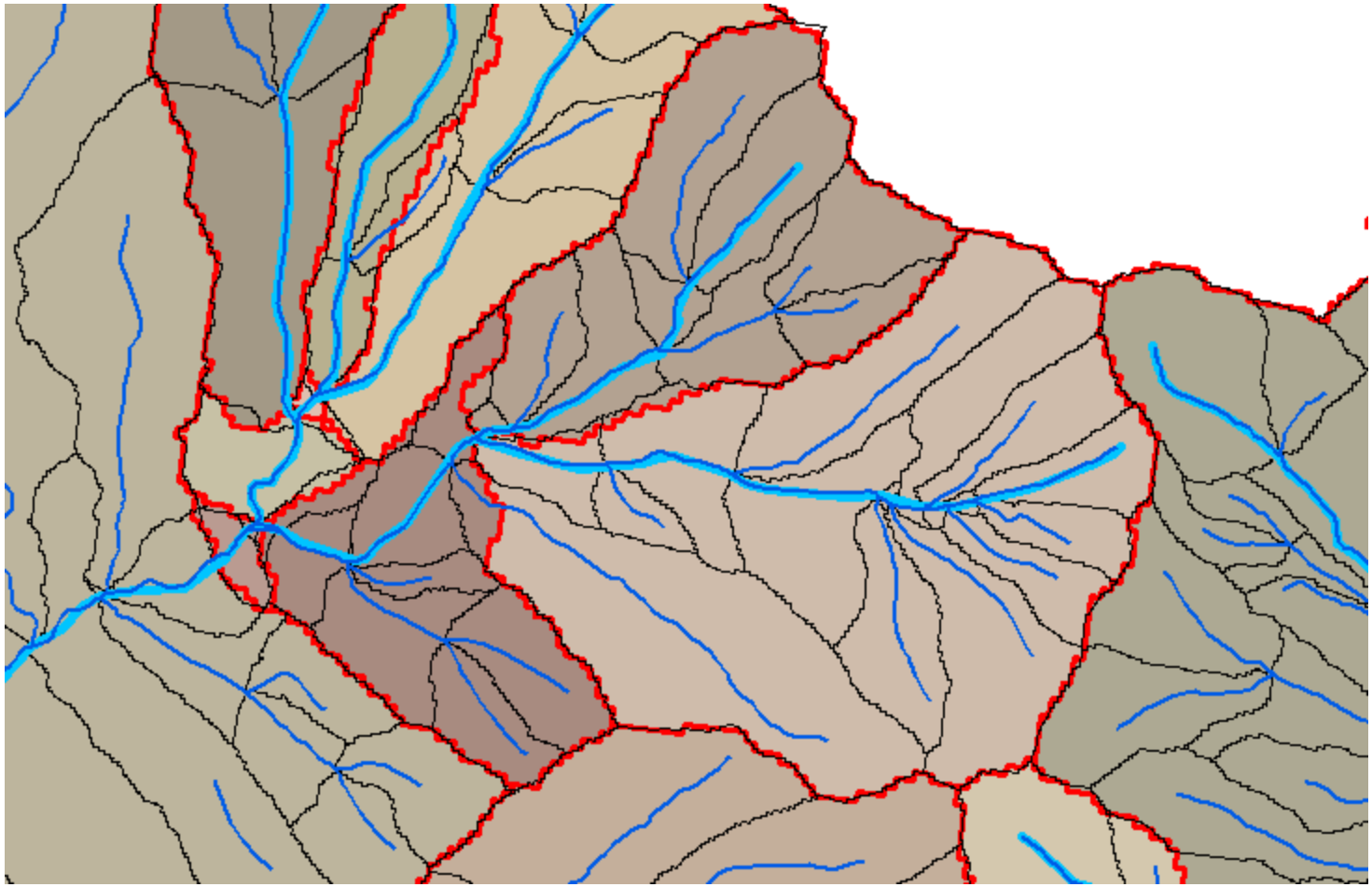
NHDPlus V2.1



NHDPlus High Res



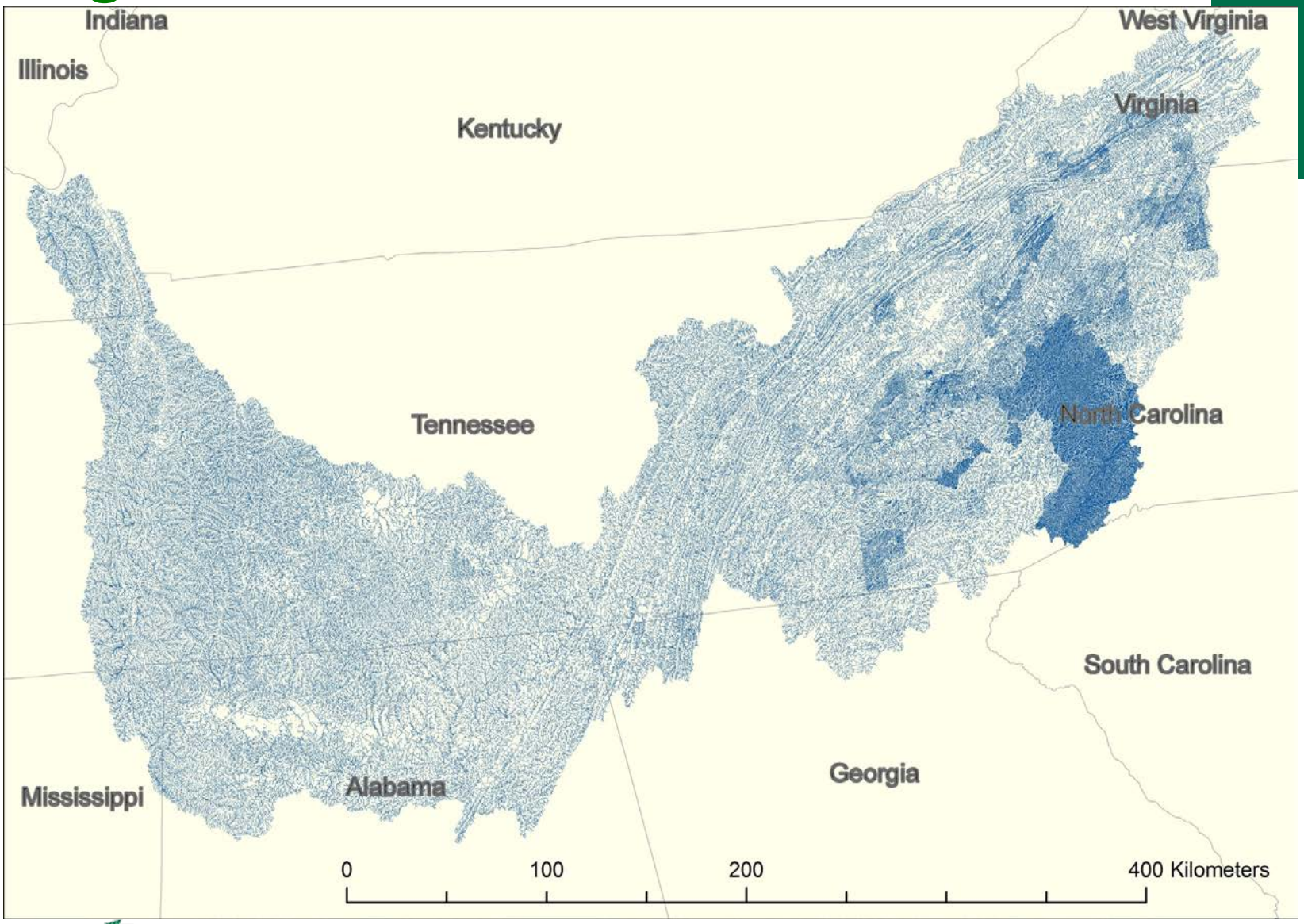
NHDPlus - Combo



How will NHDPlusHR be built?

- Adapting NHDPlus V2 tools
- Emphasize automation
- Iterative process
  - Initial production
  - QC Review—using V2.1 as a check
  - Refresh
- Generalization to multiple scales

+ Region 06 – ALL Flowlines



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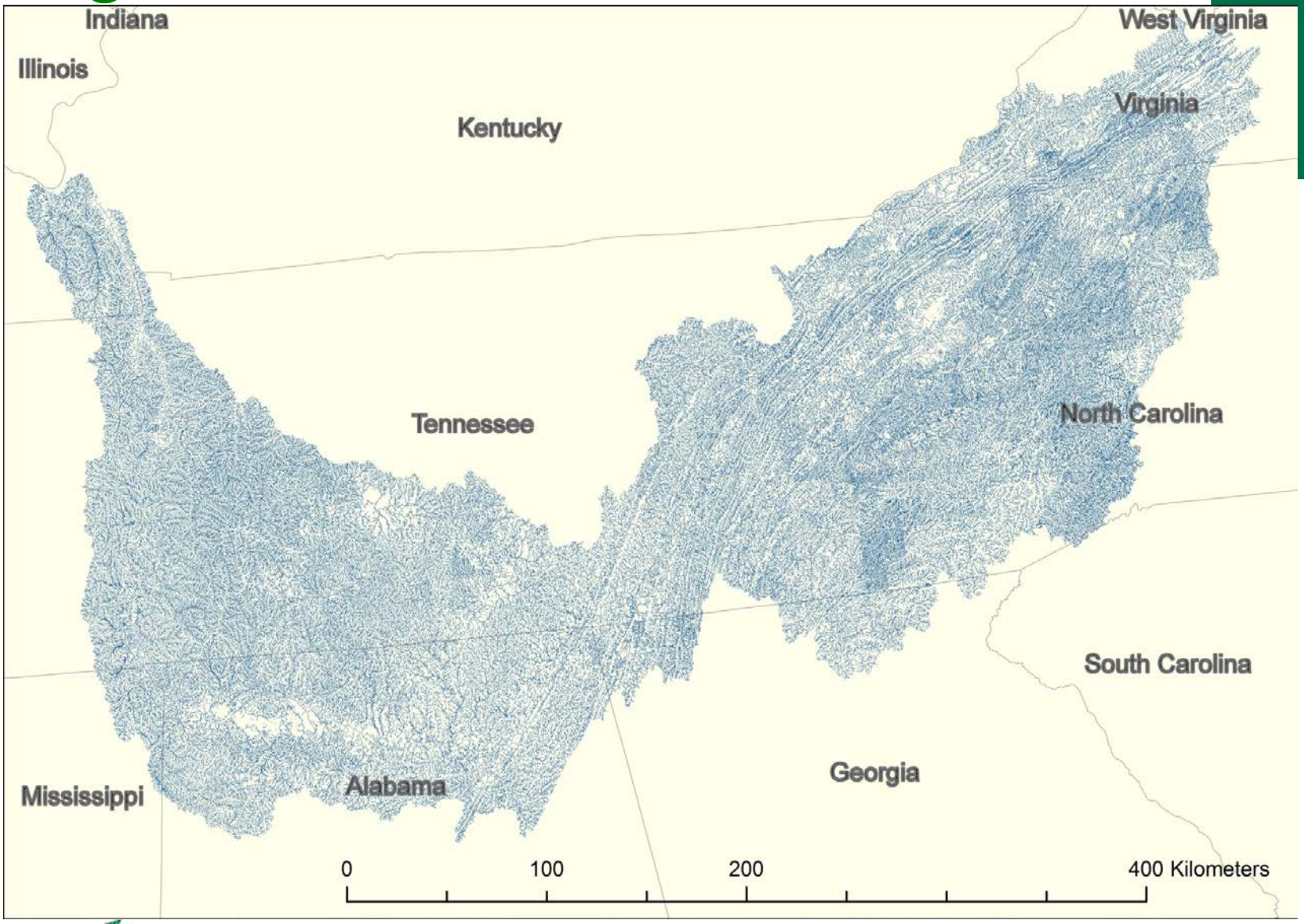

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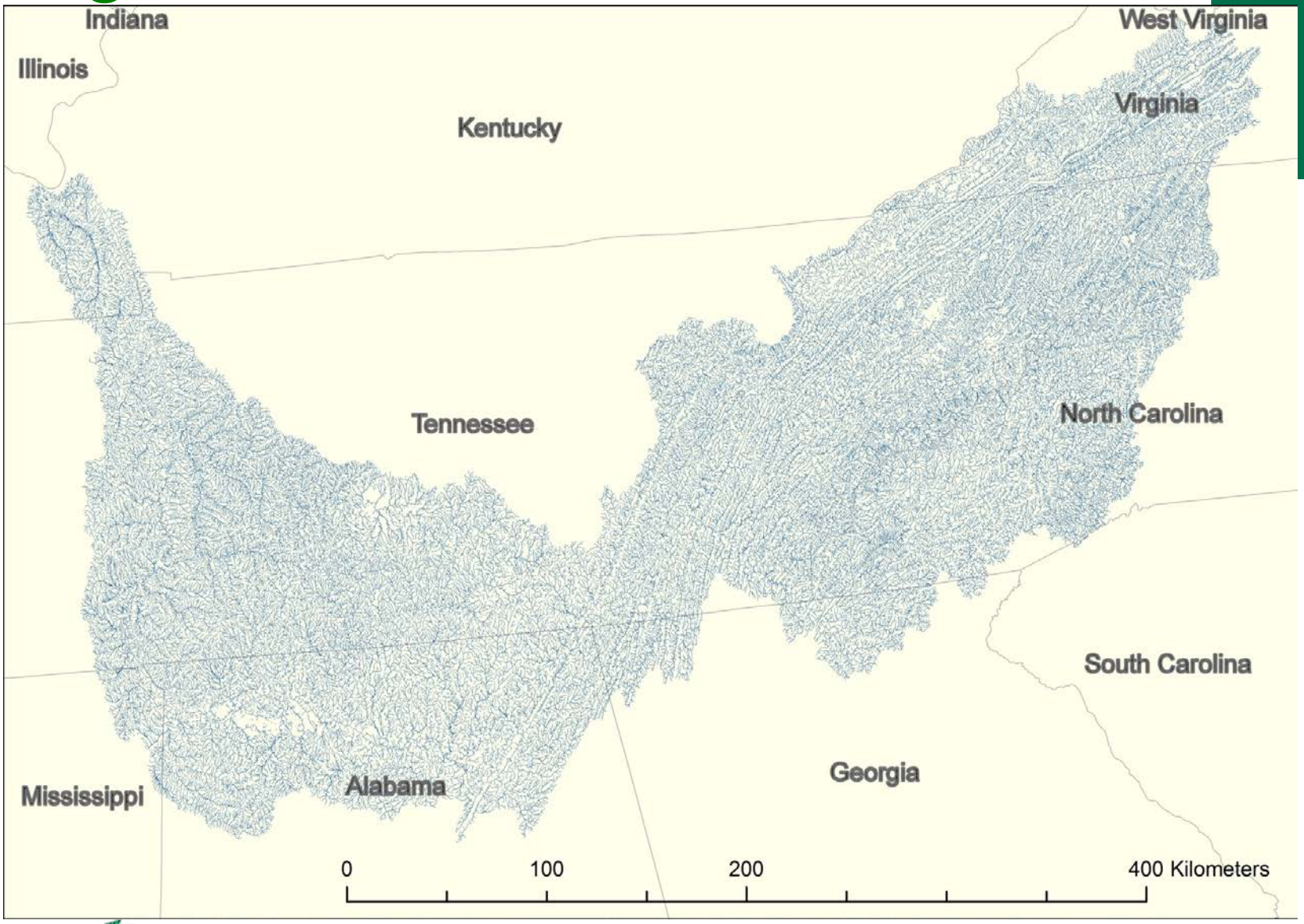
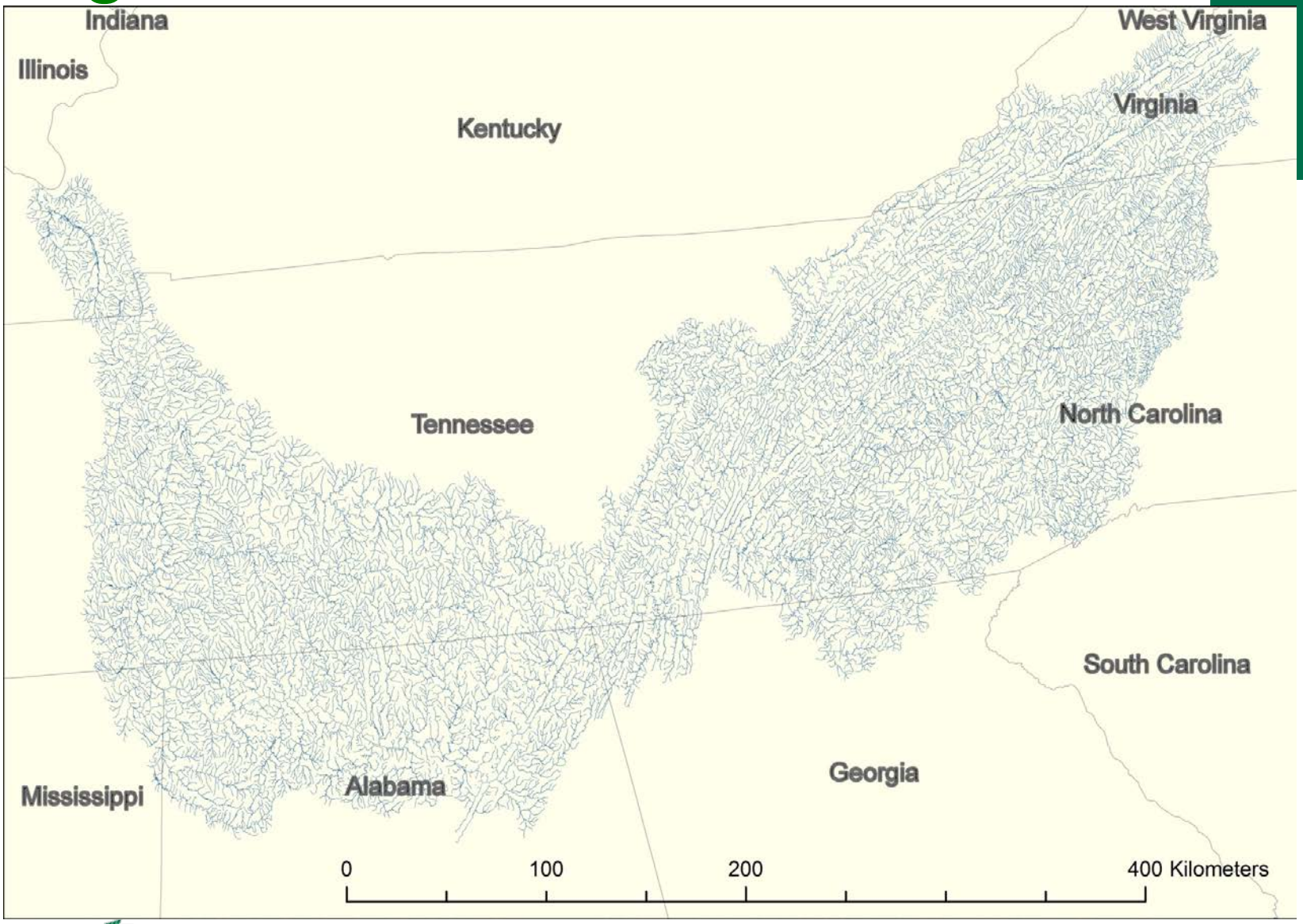


Region 06 – 1:250,000



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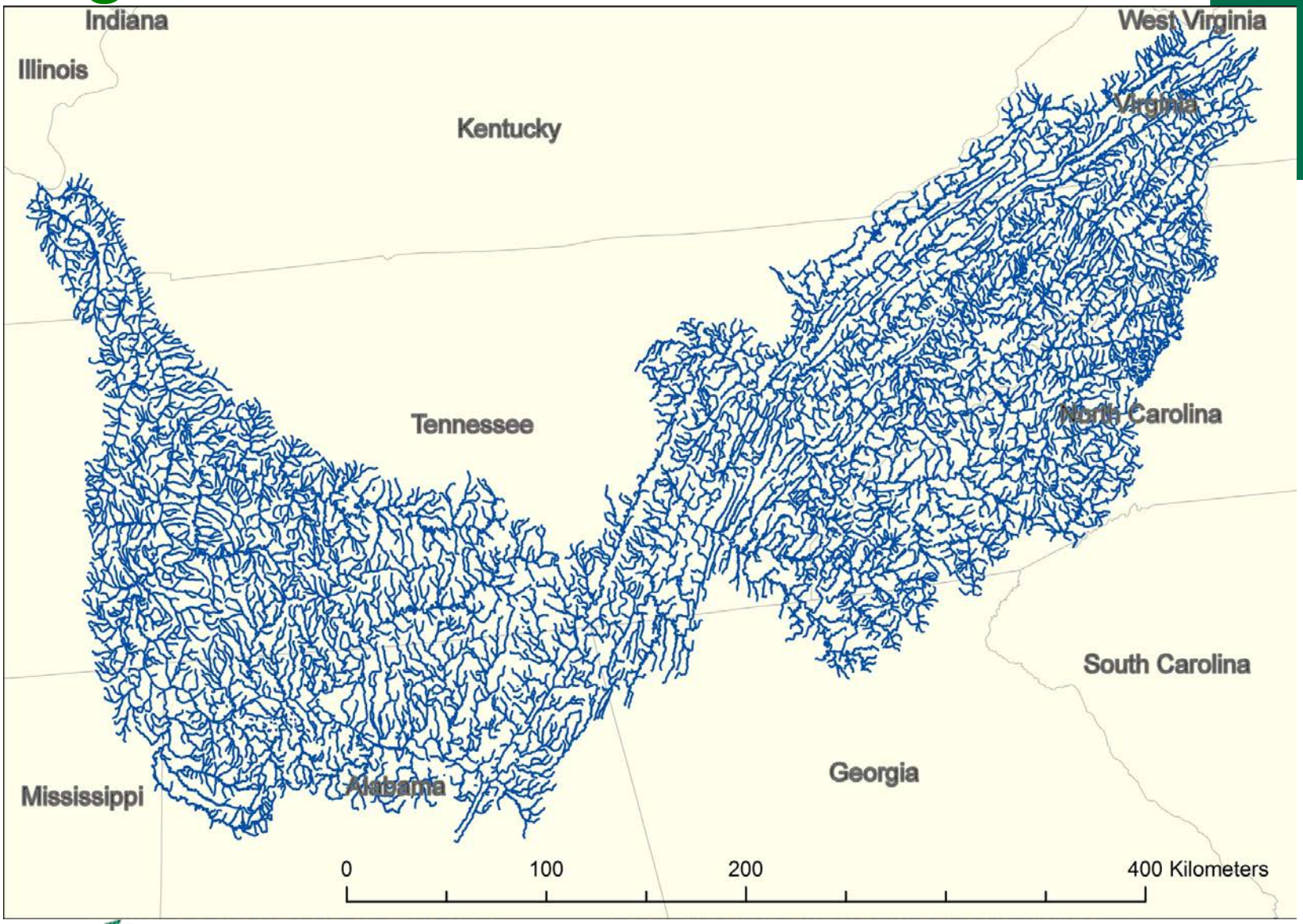

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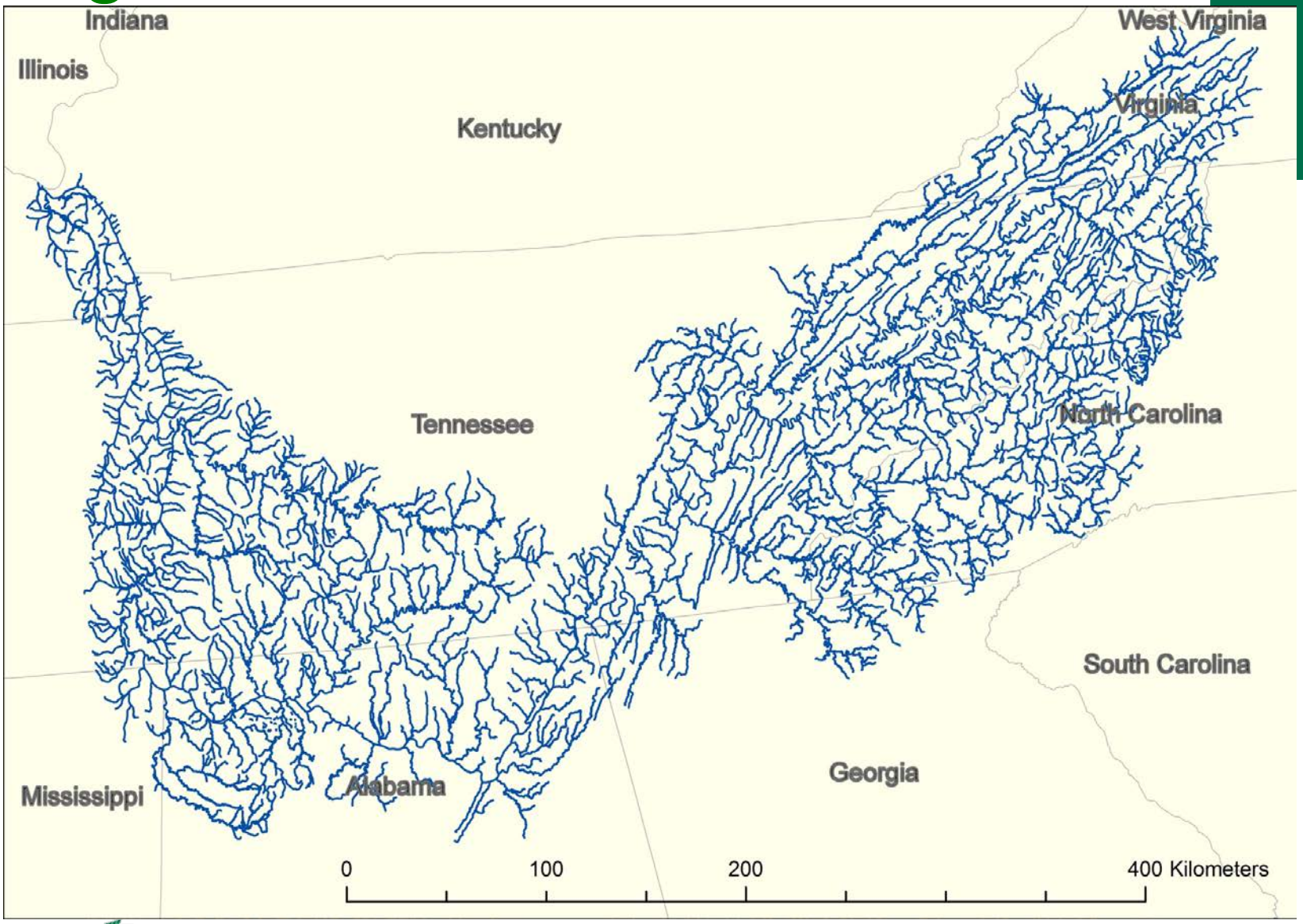
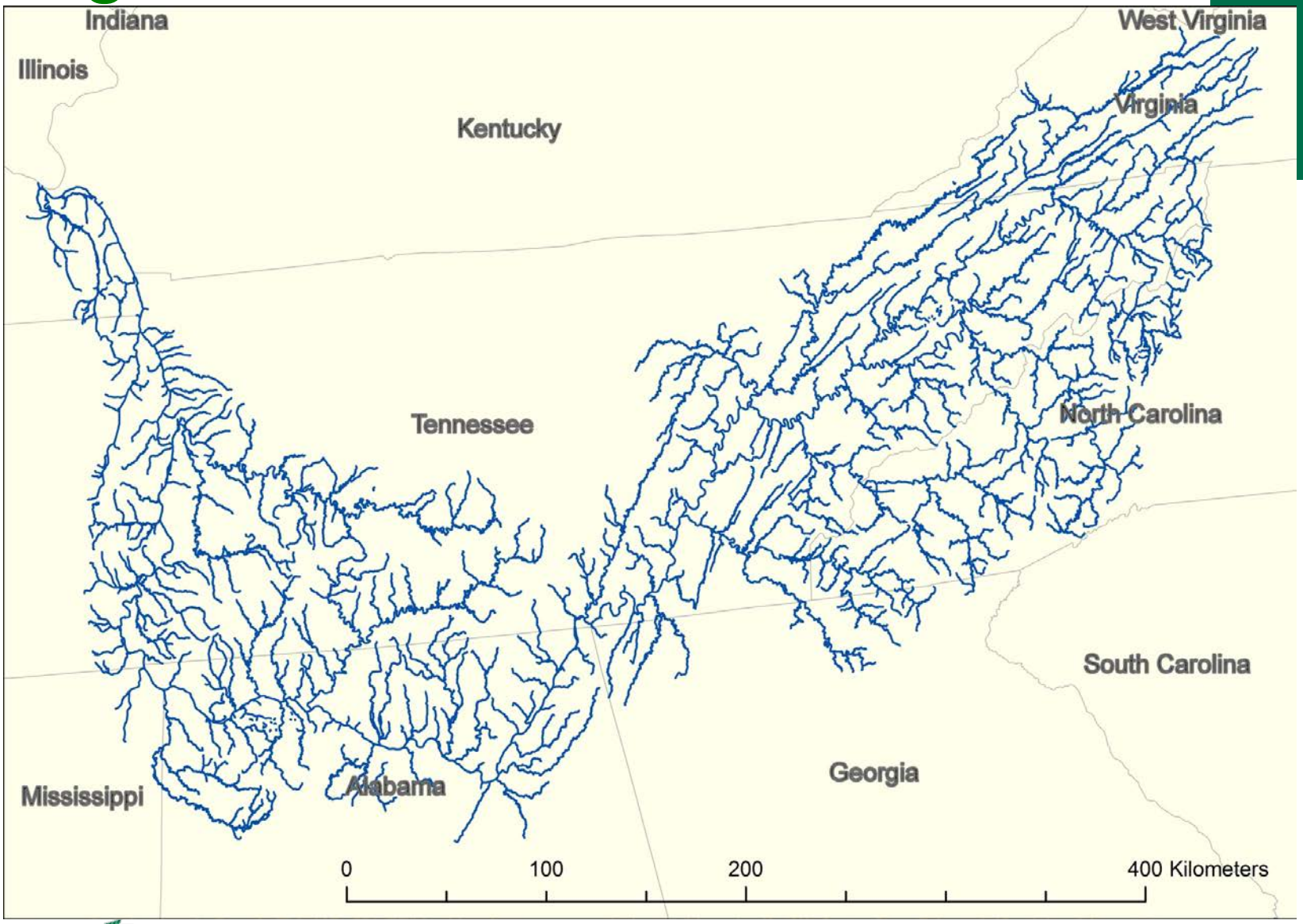
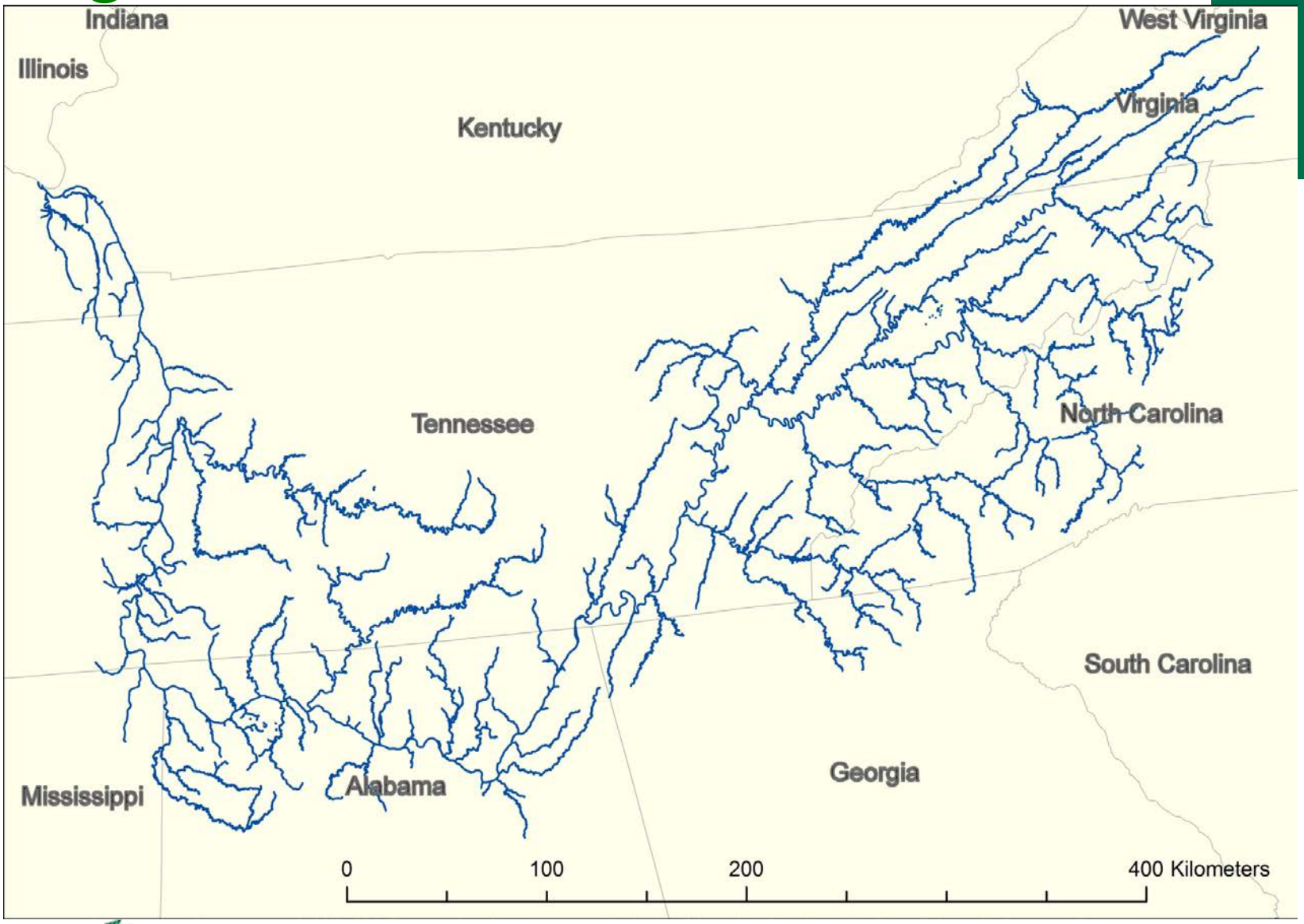


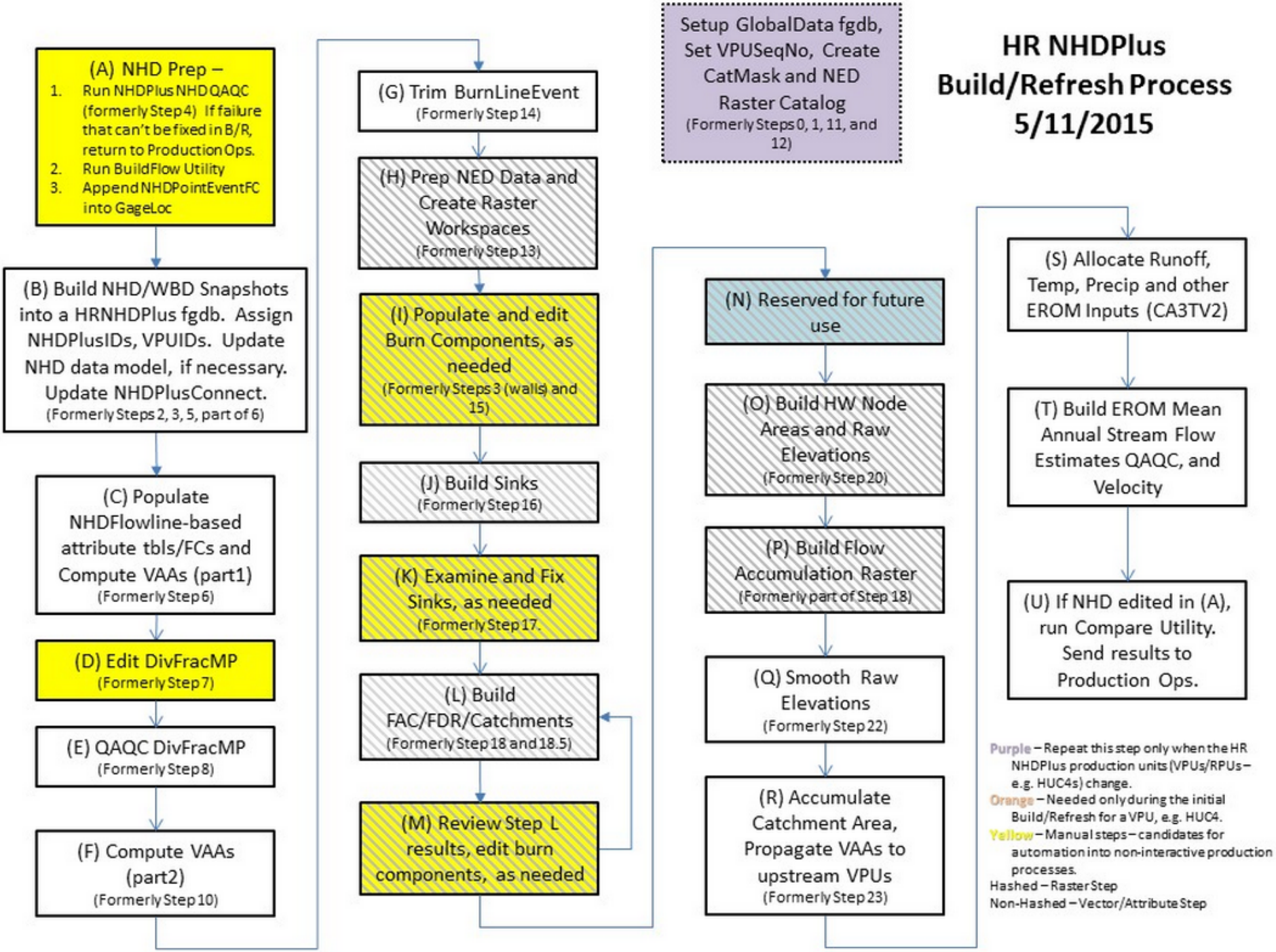
Region 06 – 1:2,000,000



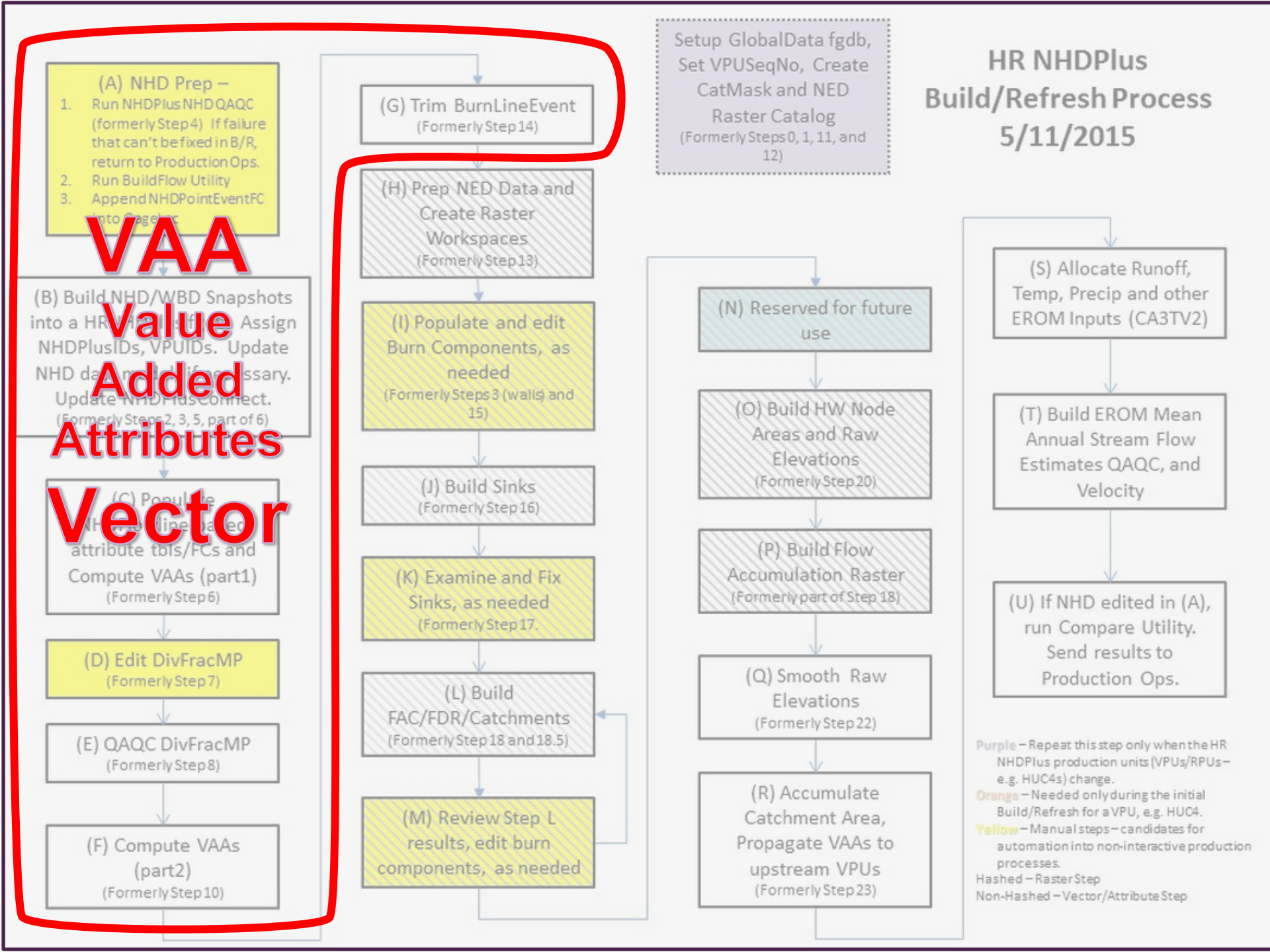
Region 06 – 1:5,000,000



HR NHDPlus Build/Refresh Process 5/11/2015



HR NHDPlus Build/Refresh Process 5/11/2015



HR NHDPlus Build/Refresh Process 5/11/2015

Setup GlobalData fgdb, Set VPUSeqNo, Create CatMask and NED Raster Catalog
(Formerly Steps 0, 1, 11, and 12)

(A) NHD Prep –
1. Run NHDPlus NHD QAQC (formerly Step 4) If failure that can't be fixed in B/R, return to Production Ops.
2. Run BuildFlow Utility
3. Append NHDPointEventFC into GageLoc

(B) Build NHD/WBD Snapshots into a HRNHDPlus fgdb. Assign NHDPlusIDs, VPUIDs. Update NHD data model, if necessary. Update NHDPlusConnect.
(Formerly Steps 2, 3, 5, part of 6)

(C) Populate NHDFlowline-based attribute tbls/FCs and Compute VAAs (part1)
(Formerly Step 6)

(D) Edit DivFracMP
(Formerly Step 7)

(E) QAQC DivFracMP
(Formerly Step 8)

(F) Compute VAAs (part2)
(Formerly Step 10)

(G) Trim BurnLineEvent
(Formerly Step 14)

(H) Prep NED Data and Create Raster Workspaces
(Formerly Step 13)

(I) Populate and edit Burn Components, as needed

(J) Build Sinks

(K) Examine and Fix Sinks, as needed
(Formerly Step 17.

(L) Build FAC/FDR/Catchments
(Formerly Step 18 and 18.5)

(M) Review Step L results, edit burn components, as needed

(N) Reserved for future use

(O) Build HW Node Areas and Raw Elevations
(Formerly Step 20)

(P) Build Flow Accumulation Raster
(Formerly part of Step 18)

(Q) Smooth Raw Elevations
(Formerly Step 22)

(R) Accumulate Catchment Area, Propagate VAAs to upstream VPUs
(Formerly Step 23)

(S) Allocate Runoff, Temp, Precip and other EROM Inputs (CA3TV2)

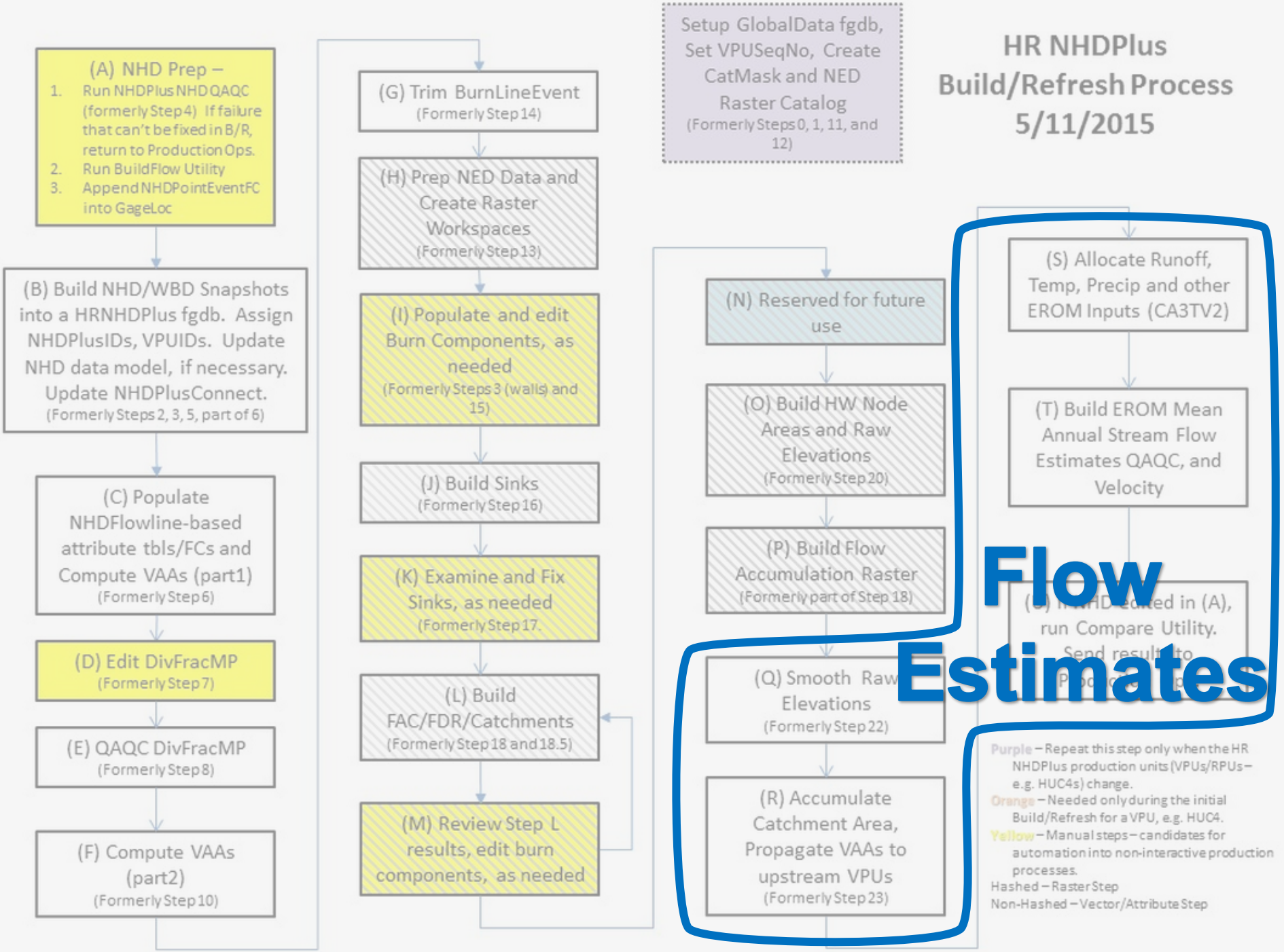
(T) Build EROM Mean Annual Stream Flow Estimates QAQC, and Velocity

(U) If NHD edited in (A), run Compare Utility. Send results to Production Ops.

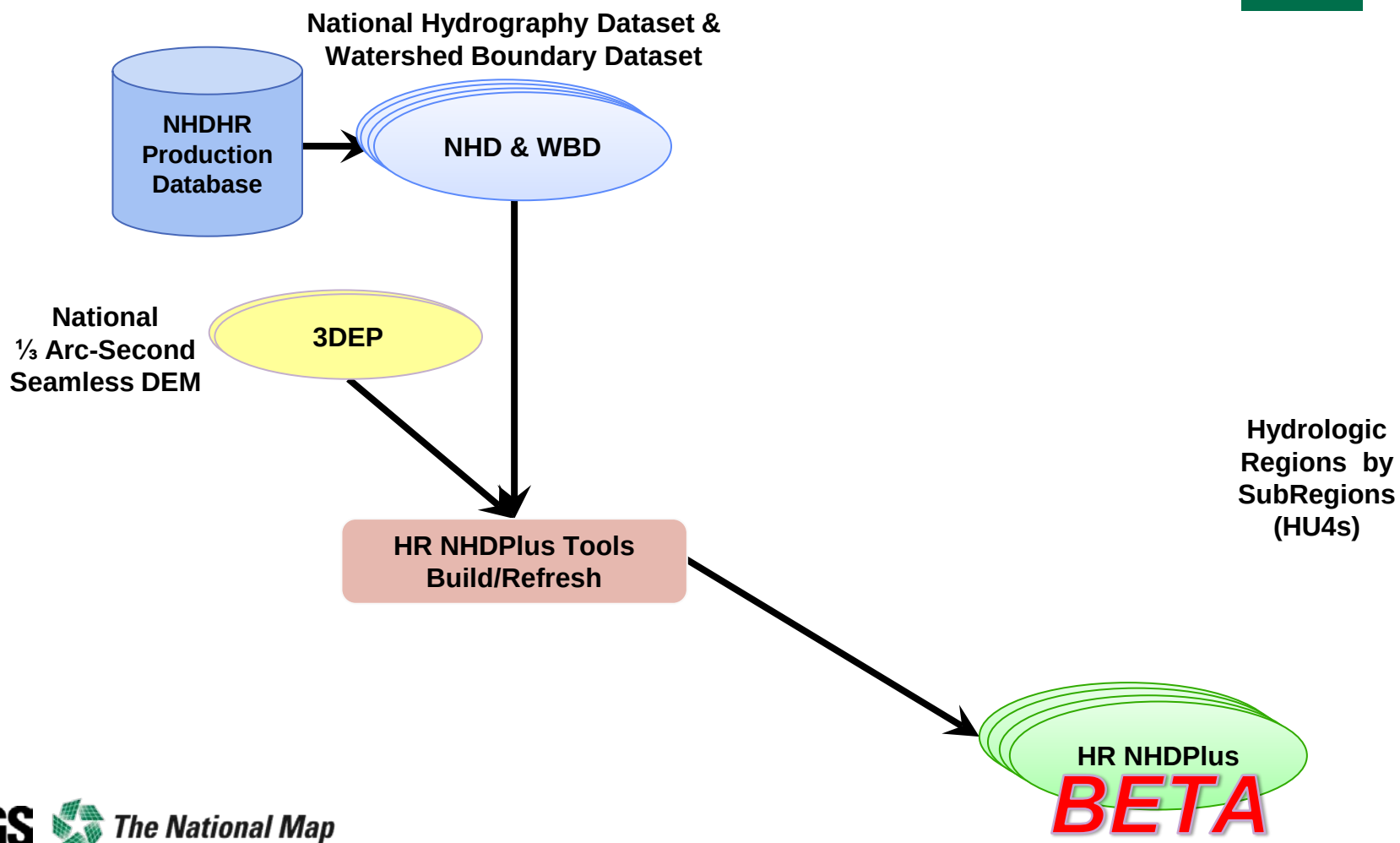
Catchments Raster

Purple – Repeat this step only when the HR NHDPlus production units (VPUs/RPUs – e.g. HUC4s) change.
Orange – Needed only during the initial Build/Refresh for a VPU, e.g. HUC4.
Yellow – Manual steps – candidates for automation into non-interactive production processes.
Hashed – Raster Step
Non-Hashed – Vector/Attribute Step

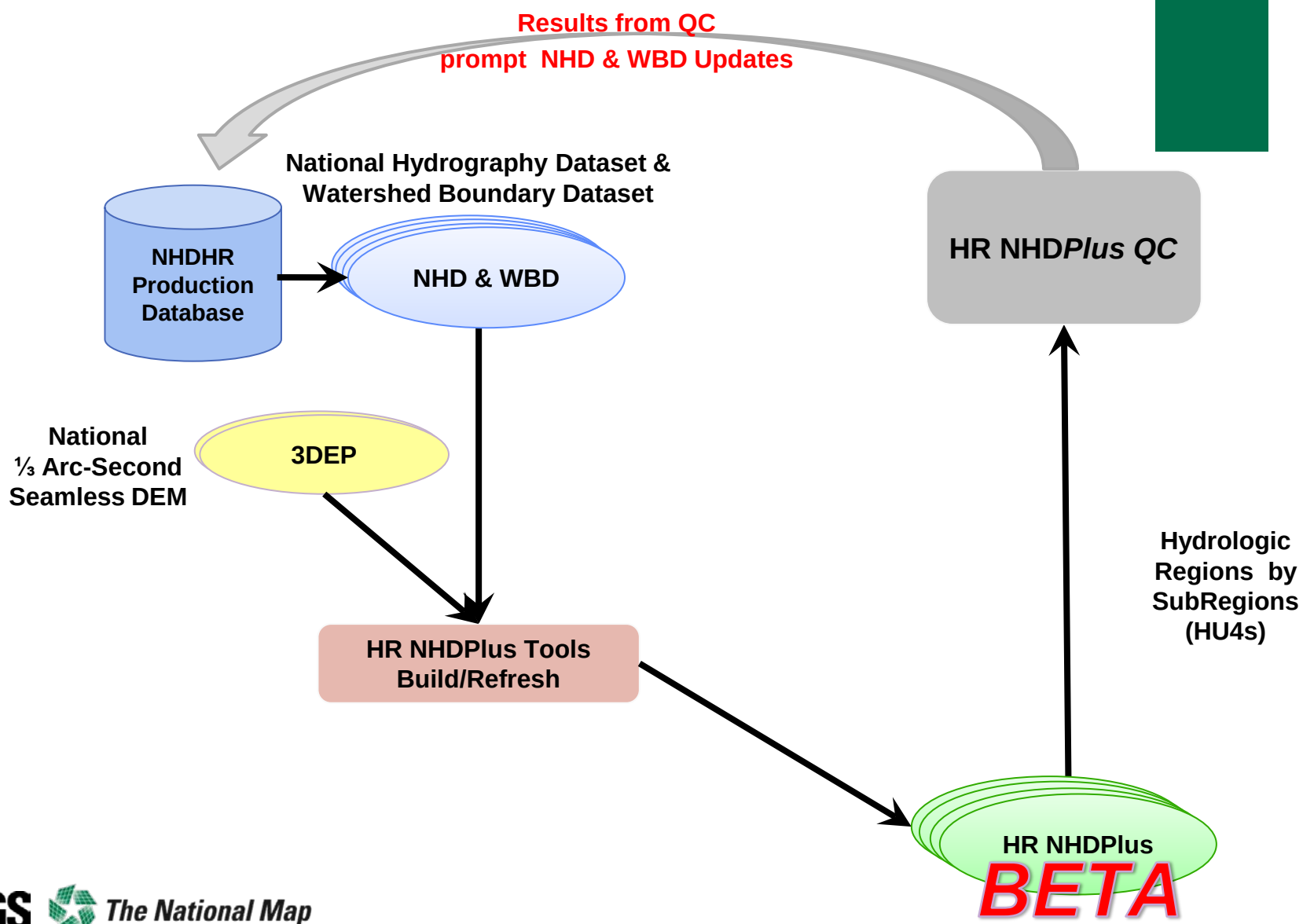
HR NHDPlus Build/Refresh Process 5/11/2015



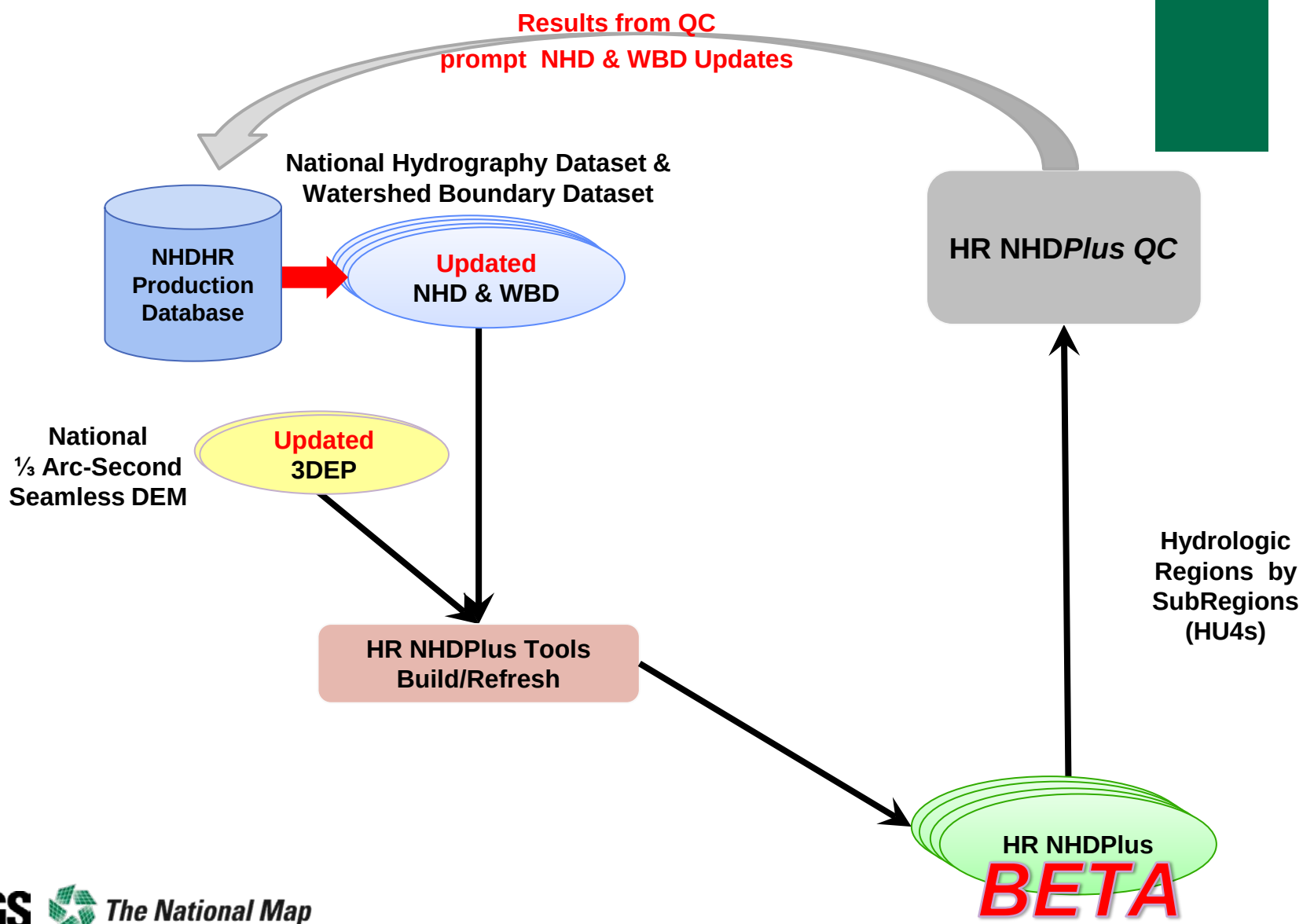
HR NHD*Plus* Workflow - Build Beta



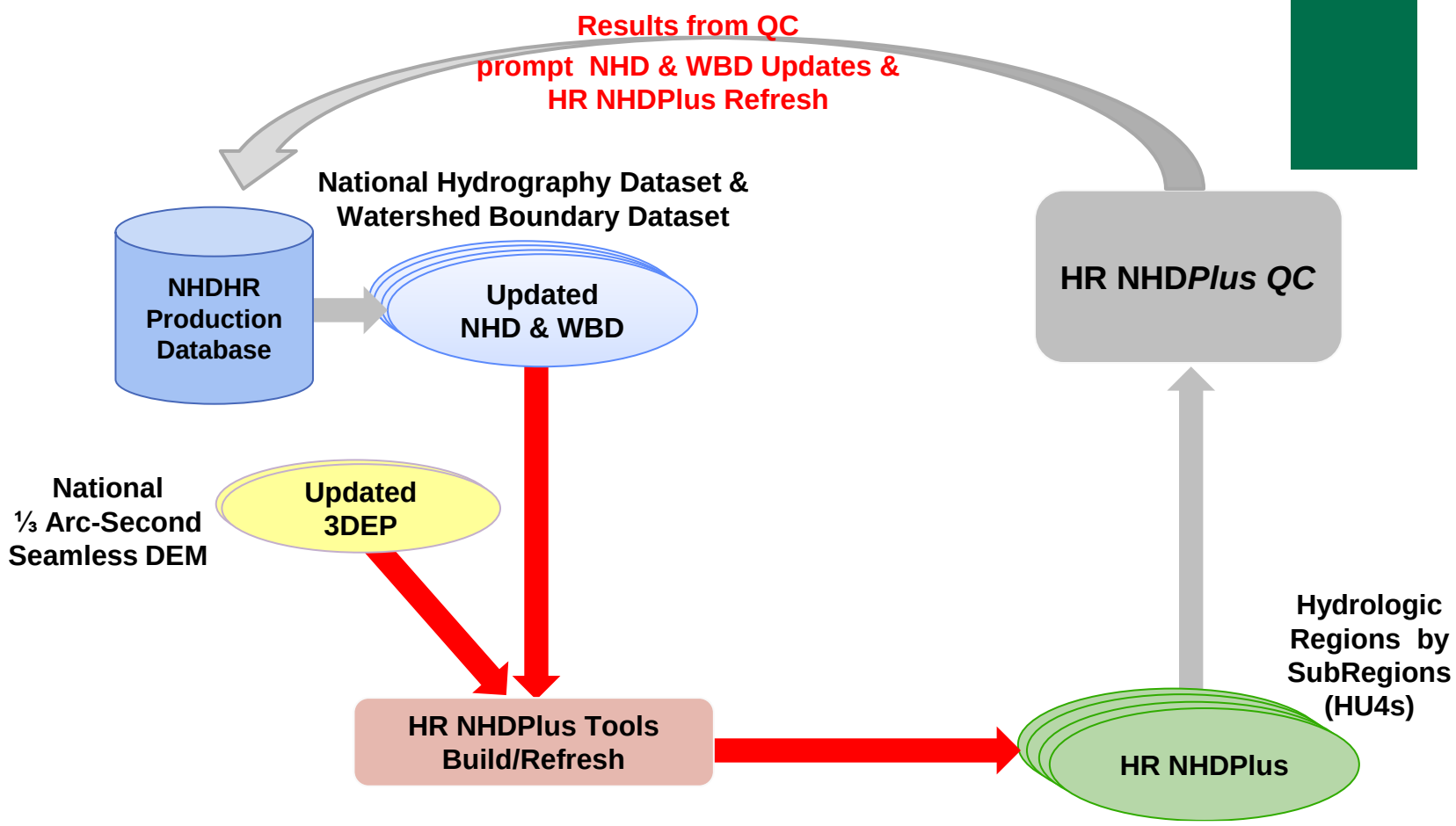
HR NHD*Plus* Workflow - QC



HR NHD*Plus* Workflow - Updates



HR NHD*Plus* Workflow - Refresh



Drivers for Refresh

- NHD*Plus* quality
- Change in Source Content NHD, WBD, or 3DEP
  - Change Detection routines

HR NHDPlus
BETA

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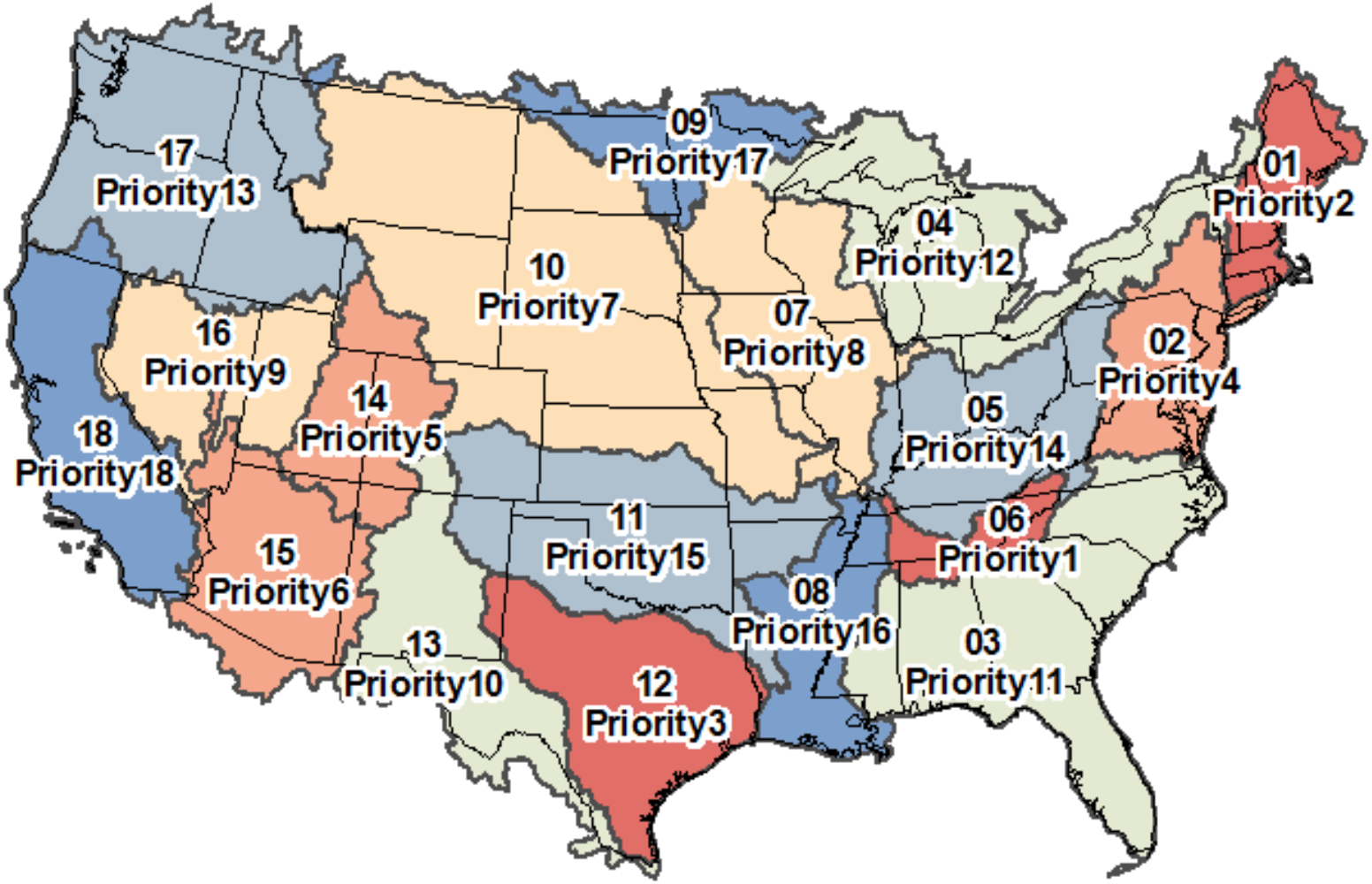
+NHDPlus Initial QC Review Review Team:

- National oversight team
  - NHDPlus development team
  - Hydrology experts
  - Biology expert
- Local hydrology experts (by region/state)
  - Stewards
  - StreamStats project staff
  - Water Science Centers staff
- NHD and WBD editors
- Vector Web Edit Development Team
  - Participate in / observe review process
  - Determine markup/edit tool requirements
  - Iterate toward optimal QC tools and workflow

NHDPlusHR Priorities



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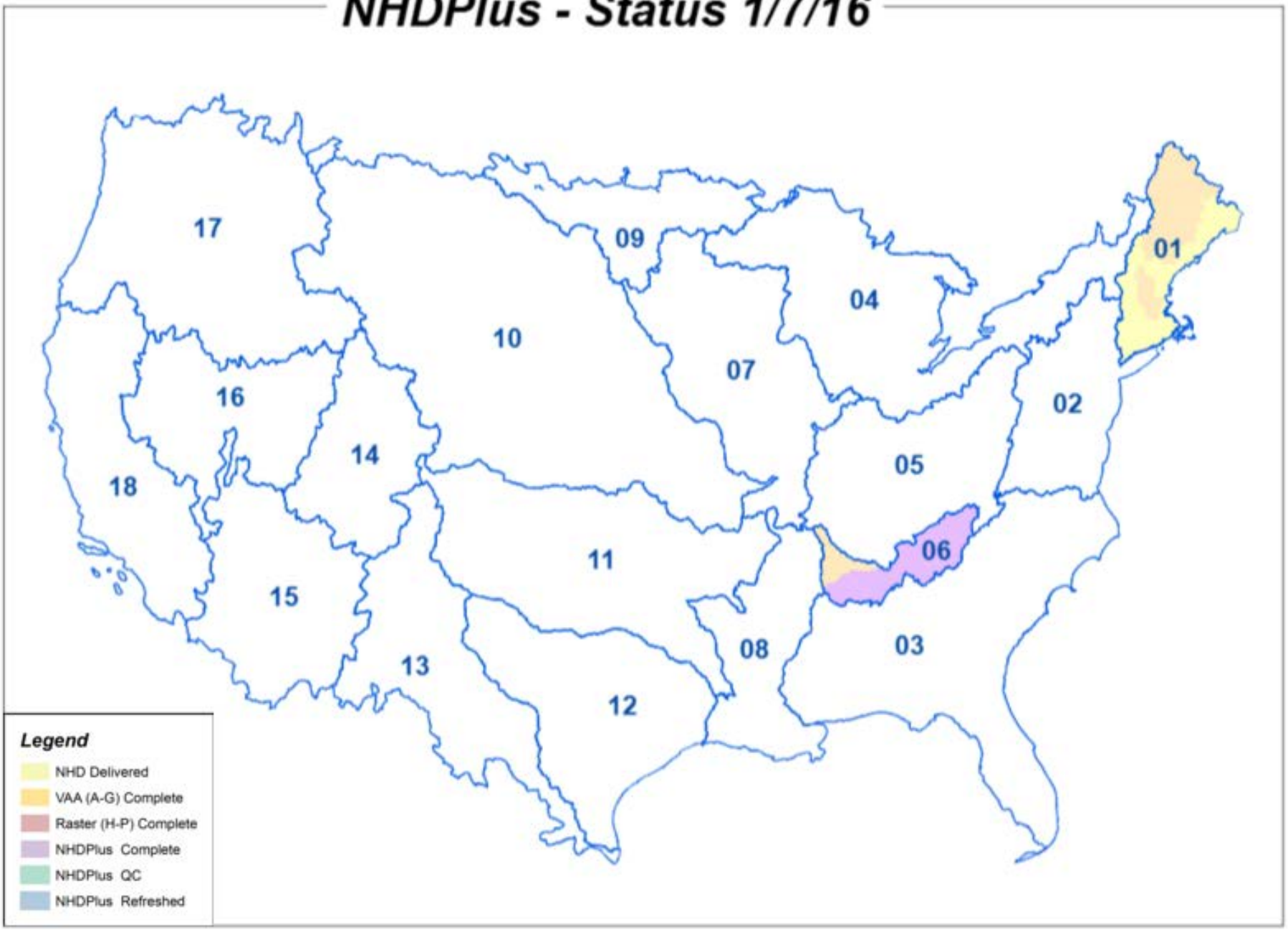
NHDPlus - Status 1/7/16



K. Adkins

NHD+HR

Questions….

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